



FCTR:WHL
71-6104

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

MAY 30 1979

U. S. Department of Energy
ATTN: Mr. Donald M. Ross
Washington, DC 20545

Gentlemen:

This refers to your letter dated December 30, 1977, requesting our review of the Model No. ANL-390-SPM 2 package.

In connection with our review of the subject package, we need the information identified in the enclosure to this letter.

Please advise us within thirty (30) days when this information will be provided.

Sincerely,

Charles E. MacDonald
Charles E. MacDonald, Chief
Transportation Branch
Division of Fuel Cycle and
Material Safety

Enclosure: As stated

cc: DOE, Albuquerque Operations
Office
ATTN: Mr. Jack R. Roeder
P.O. Box 5400
Albuquerque, NM 87115

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Model No. ANL-390-SPM
Shipping Cask

Enclosure to letter dtd MAY 30 1979

Structural

The analysis for retention of the impact limiter for the 30 foot free drop onto the corner relies primarily on static friction between the cask and the impact limiter. We need justification that the static friction force will be present as assumed for the analysis of the corner impact, 30 foot free drop. Alternatively, an analysis which neglects static friction between the cask and the impact limiter should be provided.

Containment

1. Provide the basis for containment acceptance criteria, (Section 3.3.2 of the SARP for post accident conditions which permits the release of an A₂ quantity in 48 hours. The IAEA Safety Standards, Safety Series No. 6, 1973 permits a maximum release of A₂ x 10⁻³ in 1 week for the type B(U) packages, and A₂ in 1 week for Type B(M) packages.
2. Provide additional justification for the stated sensitivity of better than 1 x 10⁻⁵ atm-cm³/sec for the bubble leak test (Section 3.3 of the SARP). Sources such as: 1) ANSI N14.5, "Leakage Tests on Packages for Shipment of Radioactive Material", American National Standards Institute, December 1974; and 2) NASA CR106139, "Leakage Testing Handbook", July 1969; indicate that such a test can at best detect leak rates as low as 1 x 10⁻⁴ atm-cm³/sec. Blockage of the bubbles corresponding to smaller leak rates rather than inability to detect the bubbles apparently makes the test inadequate for smaller leak rates.

Acceptance Tests and Maintenance Program

1. Revise Section 7.1, "Acceptance Tests", to permit fabrication of additional packagings by stating the general description of tests and acceptance criteria to be performed prior to first use of any packaging. The present Section 7.1 contained in the SARP refers only to packagings already built. NRC approvals are for general packaging designs and their contents rather than specific units.
2. Specify the leak testing to be performed on the M-insert Types VI and VII containment vessels. Tests should include those performed before first use, periodically and an assembly verification test, to be performed prior to each shipment.

Regulatory Guide 7.4 may be used for determining leak tests to be performed before first use and periodically. The assembly verification test should have sufficient sensitivity to detect a leak that could release no more than a Type A quantity of material in 10 days is used. However, a leak test sensitivity greater than is 1×10^{-3} atm-cm³/sec would not be required. The minimum sensitivity of 1×10^{-1} atm-cm³/sec (air at 25°C and 1 atm leaking to a 10^{-2} atm ambient) as specified in ANSI N14.5 should be met.

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